Date: Wednesday, 27/08/2008 3:30:45 PM
User: Julie Lecocq

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	**Drawing Name**	: 407 FWD X-TUBE, TURNING DETAIL
Job Number	: 41651		
Estimate Number	: 13204		
P.O. Number	:	**Part Number**	: D407667105TRN
This Issue	: 27/08/2008 **S.O. No.** :	**Drawing Number**	: D407-667-145 REVB
Prsht Rev.	: NC	**Project Number**	: N/A
First Issue	: / / **Type** : CROSSTUBES	**Drawing Revision**	: B
Previous Run	: 40174	**Material**	:
Written By	:	**Due Date**	: 05/09/2008 **Qty:** 1 **Um:** Each
Checked & Approved By	: JD 088.27		
Comment	: Est Rev:a 08.02.28 new issue EC Est Rev B 08.04.02 Removed polish EC verified by: DD		

Additional Product

Job Number:

Seq. #:	Machine Or Operation:	Description :
1.0	D6010115	Crosstube Material

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Pick:
Qty Part number Description Batch
1 D6010-115 Crosstube B302308
Check OD = 2.250"; ID = 1.610" a.m 08.09.16 (1)

Seq. #:	Machine Or Operation:	Description :
2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE

Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8673 on both ends as per Folio FA249

2-Turn first side as per Folio FA249

3- File transition lines smooth. a.m 08.09.16 (1)

Seq. #:	Machine Or Operation:	Description :
3.0	QC1	INSPECT ALL DIM TO DIM SHEET

Comment: INSPECT ALL DIM TO DIM SHEET a.m 08.09.16 (1)

Seq. #:	Machine Or Operation:	Description :
4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE

Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA249

2- File transition lines smooth.

3-Remove sand and plugs a.m 08.09.16 (1)

Form: rprocess

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** _____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 27/08/2008 3:30:45 PM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services
Drawing Name: 407 FWD X-TUBE, TURNING DETAIL

Job Number: 41651
Part Number: D407667105TRN

Job Number:

Seq. #:	Machine Or Operation:	Description :
	4-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-145 Inside of Cuff(Do not engrave on outside of tube)	am 08.09.16 (1)
5.0	QC1	INSPECT ALL DIM TO DIM SHEET
	Comment: INSPECT ALL DIM TO DIM SHEET	am 08.09.16 (1)
6.0	QC8	SECOND CHECK — AWM 8-9-17
	Comment: SECOND CHECK	
7.0	HAND FINISHING1	HAND FINISHING RESOURCE #1 — AWM 8-9-17
	Comment: HAND FINISHING RESOURCE #1 Chemical Conversion Coat as per QSI 005 4.1	
8.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION
	Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION	DP 8-9-17
9.0	PACKAGING 1	PACKAGING RESOURCE #1
	Comment: PACKAGING RESOURCE #1 Identify and stock in Kanban rack Location: X-TUBE CELL	AWM 8-9-17
10.0	QC21	FINAL INSPECTION/W/O RELEASE — 08/09/17
	Comment: FINAL INSPECTION/W/O RELEASE	

Job Completion — MF 08-09-17

Form: rprocess

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

DART AEROSPACE LTD	Work Order:	41651
Description: Crosstube Assembly	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[X] First Article [ ] Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.242	✓			
	1.865	+0.005/-0.000	1.870	✓			
	1.878	+0.005/-0.000	1.883	✓			
	1.970	+0.005/-0.000	1.974	✓			
	2.030	+0.005/-0.000	2.031	✓			
	2.165	+0.005/-0.000	2.169	✓			
	0.125	+/-0.010	0.125	✓			
	R0.063	+/-0.010	R0.063	✓			
	R0.500	+/-0.010	R0.500	✓			
	R0.063	+/-0.010	R0.063	✓			
	4.438	+/-0.010	4.438	✓			
SIDE B	2.240	+0.005/-0.000	2.242	✓			
	1.865	+0.005/-0.000	1.870	✓			
	1.878	+0.005/-0.000	1.883	✓			
	1.970	+0.005/-0.000	1.974	✓			
	2.030	+0.005/-0.000	2.031	✓			
	2.165	+0.005/-0.000	2.169	✓			
	0.125	+/-0.010	0.125	✓			
	R0.063	+/-0.010	R0.063	✓			
	R0.500	+/-0.010	R0.500	✓			
	R0.063	+/-0.010	R0.063	✓			
	4.438	+/-0.010	4.438	✓			
	113.20	+/-0.020	113.200	✓			

Measured by:	a.m
Date:	08.09.16

Audited by:	ANM
Date:	8-9-17

Prototype Approval:	N/A
Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-105)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM [signature]	[signature]

DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED DS	APPROVED DS	DRAWING NO. D407-667-145	REV. B SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	SCALE NTS

A	02.05.08	NEW ISSUE
B	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES

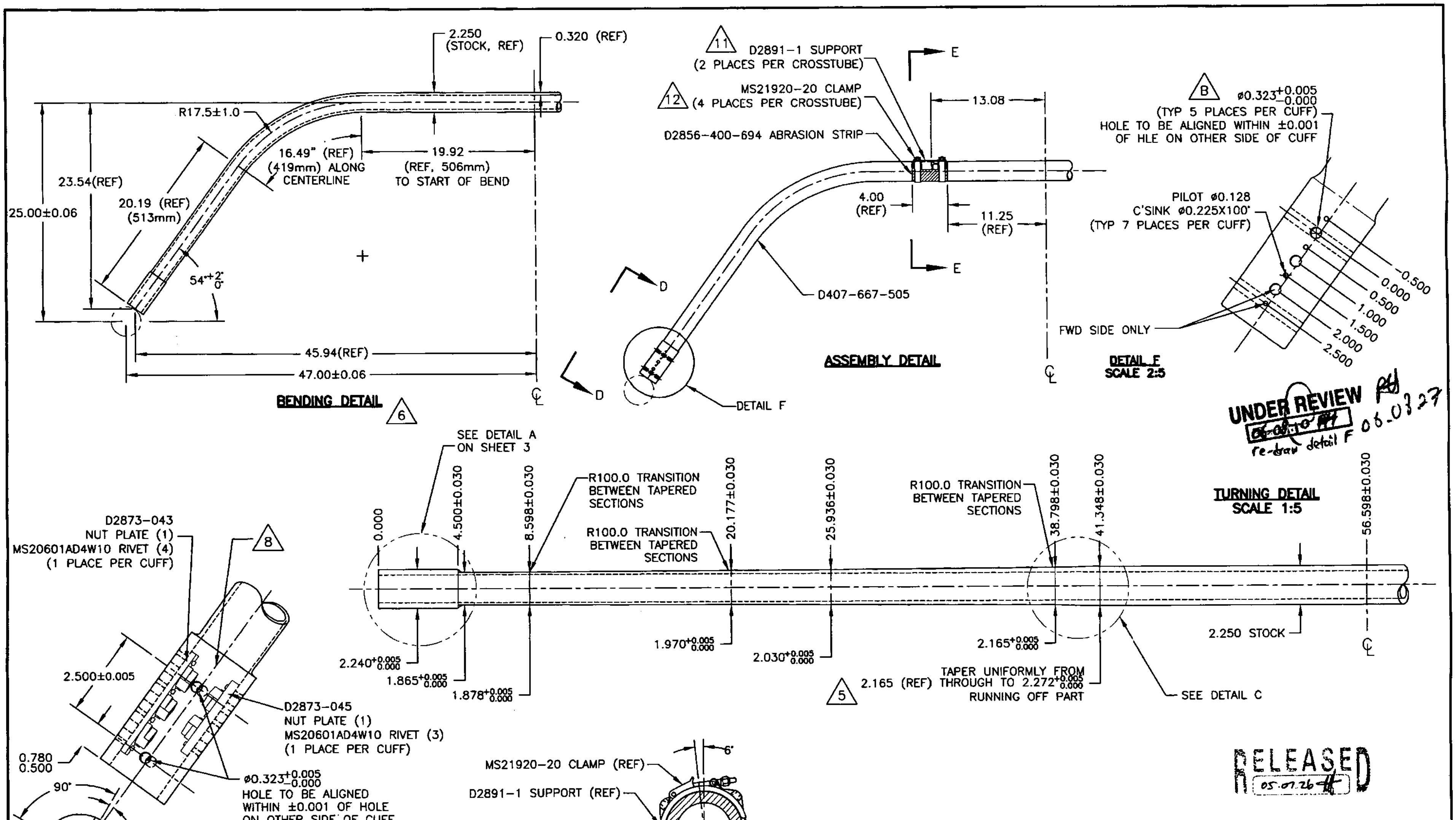
RELEASED 05.07.26

UNDER REVIEW 06.08.10

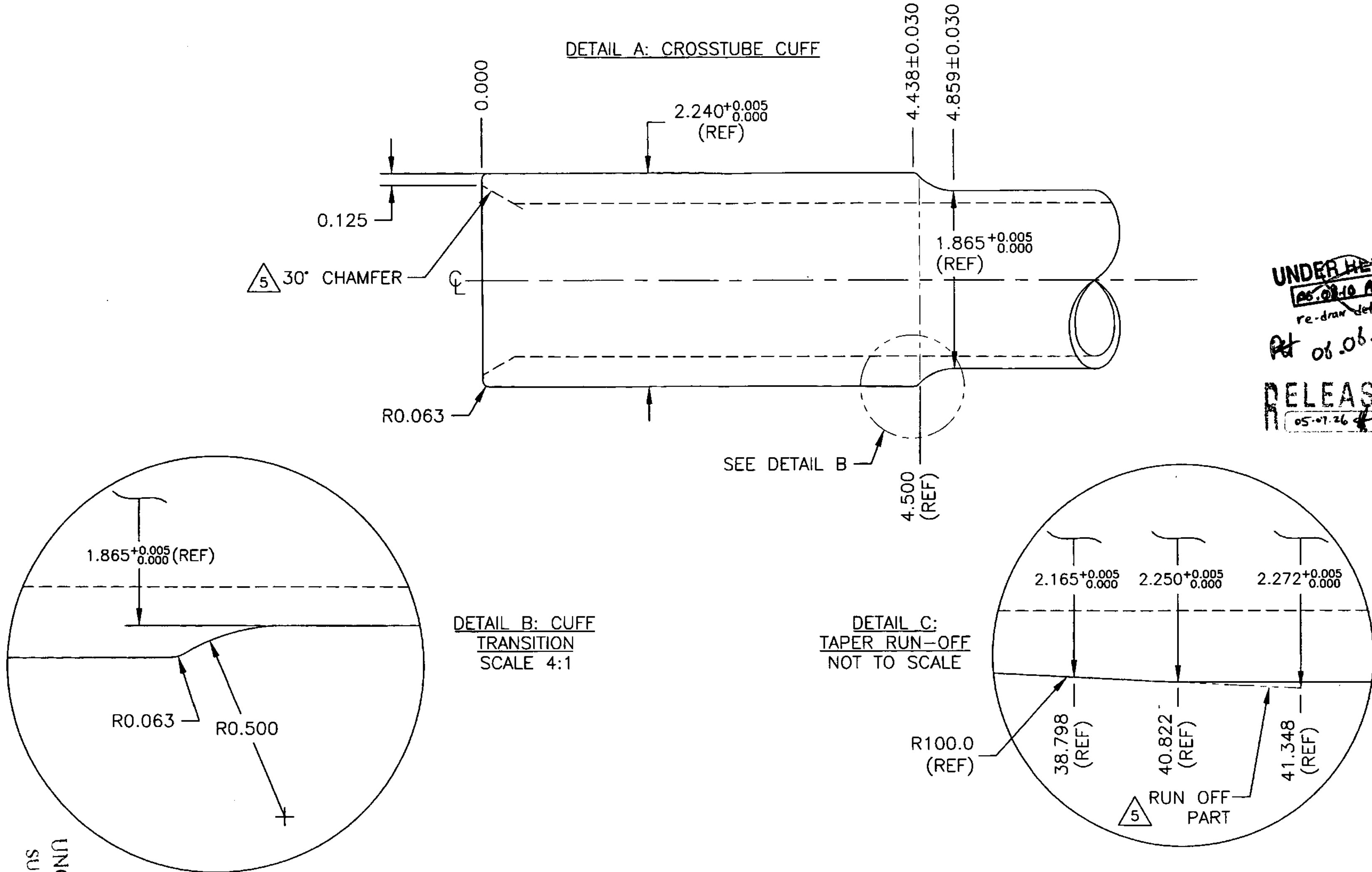
Qty	Part Number	Description
X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
1	D6010-115	CROSSTUBE
2	D2856-400-694	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
2	D2891-1	SUPPORT
14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
4	MS21920-20	CLAMP

GENERAL NOTES:

1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
2) MATERIAL: MANUFACTURED FROM D6010-115
   FINISHED LENGTH = 113.20±0.020
3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
4) PART IS SYMMETRIC ABOUT CENTERLINE.
5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT (OPTIONAL).
12) TORQUE CLAMPS 80 TO 100 IN-LB.



DESIGN	DRAWN BY	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA	
PH	PH	DRAWING NO. D407-667-145	REV. B SHEET 2 OF 3
CHECKED DS	APPROVED DS	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	SCALE 1:10
DATE 05.07.26			



UNDER REVIEW 06.08.10 re-draw detail F 06.08.27

RELEASED 05.07.26

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WORK ORDER
NO. 4465-1

DESIGN	DRAWN BY	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
PH	PH	DRAWING NO. D407-667-145 — REV. B — SHEET 3 OF 3
CHECKED DS	APPROVED DS	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)
DATE 05.07.26		SCALE 1:1